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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Toth, Thomas L.
Serial No.	:	10/063,366
Filed	:	April 16, 2002
For	:	Method and Apparatus of Multi-Energy Imaging
Group Art No.	:	3737
Examiner	:	Baisakhi Roy

CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10

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Date: July 19, 2007 /Robyn L. Templin/
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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Sir:

Applicant requests review of the final rejection in the above-identified application. No amendments have been made with this request. The request is being filed with a Notice of Appeal. The review is requested for the reasons set forth hereinafter.

REMARKS

Claims 1-27 are pending in the present application. In the Final Office Action mailed April 19, 2007, the Examiner rejected claims 1-4, 6-12, 14-21, and 23-27 under 35 U.S.C. §102(b) as being anticipated by Gordon et al. (USP 5,661,774). The Examiner next rejected claims 5, 13, and 22 under 35 U.S.C. §103(a) as being unpatentable over Gordon et al. in view of Heuscher (USP 5,262,946).

In a Pre-Appeal Conference Request filed July 24, 2006, Applicant presented at least two procedural issues for review by the Panel: 1) the Examiner citing art pertaining to a non-elected species; and 2) the Examiner citing art which does not teach every element as called for in the claims. In a Decision dated October 31, 2006, the Panel directed that prosecution be reopened. In an Office Action dated October 31, 2006, the Examiner simply cut and pasted what appears to be an identical §102(b) rejection citing the same prior art. The Examiner made the rejection Final in an Office Action dated April 19, 2007.

Applicant asserts that the Examiner has erred procedurally in at least two regards: 1) the Examiner did not withdraw the previous rejection; and 2) the Examiner has cited art which does not teach every element as called for in the claims.

The Examiner rejected claims 1, 8, 16, 19 and 24 under 35 U.S.C. §102(b) as being anticipated by Gordon et al. Claim 1 calls for, in part, a CT system having a number of HF electromagnetic energy filters in a spoked relationship with the hub, wherein a first filter is positioned between the HF electromagnetic energy source and the subject by rotation of the hub and a second filter is positioned between the HF electromagnetic energy source and the subject by rotation of the hub. Claim 8 calls for, in part, positioning a first portion of a filtering apparatus in a spoked relationship with a hub, and positioning a second portion of the filtering apparatus in a spoked relationship with the hub. Claim 16 calls for, in part, positioning a first filter by rotation of a hub in a spoked relationship with the first filter, and positioning a second filter by rotation of the hub in a spoked relationship with the second filter. Claim 19 calls for, in part, rotating a hub to position a first filter, in a spoked relationship with the hub, and rotating the hub to position a second filter, in a spoked relationship with the hub, between the HF electromagnetic energy source and the subject. Claim 24 calls for, in part, a hub, a first filter connected to the hub at a first connection port, and a second filter connected to the hub at a second connection port, wherein the first and second filters are in a spoked relationship with the hub.

Gordon et al. teaches "an improved power supply that is useful in connection with dual energy X-ray systems." *Gordon et al. 774,* Col. 1, lns. 13-16. "Filter 262 is a preferably flat disk

that is disposed proximal to X-ray tube 128 for rotation within the beam generated by X-ray tube 128." *Id.,* Col. 13, lns. 15-17. Filter 262 is a flat metal disk with six pie shaped segments, with three of the segments 270 formed from relatively thick material, and three segments 272 formed from relatively thin material. *See Id.,* Col. 13, lns. 23-33. "Segments 270 and 272 are alternately disposed so that each of the thick segments 270 is adjacent to two of the thinner segments 272, and vice versa." *See Id.,* Col. 13, lns. 37-39. Filter 262 rotates to dispose segments 270 and 272 alternately in the beam. *See Id.,* Col. 13, lns. 40-44.

The Examiner alleged that the filters have a spoked relationship as called for in claims 1, 8, 16, 19, and 24 and alleged that they are anticipated by Gordon et al. under §102(b). The Examiner alleged that Gordon et al. "clearly teaches a filter 262, divided into six thin and thick segments alternately disposed on the metal disk." *Id.* The Examiner alleged that the segments in Gordon et al. are in a spoked relationship with respect to the disk and stated, "[t]he segments themselves are the spokes extending radially from the center of the disk to a rim." *Id.* The Examiner stated that the segments 270, 272 are alternately disposed as the filter rotates between two energy levels "which would clearly demonstrate the spoked relationship of the filter segments with respect to the center of the metal disk. *Id.*

The Examiner cited a Merriam-Webster Online dictionary in support of a conclusion that a "hub is the 'central part of a circular object (wheel or propeller)' as the metal disk in Gordon et al. et al. and spokes are 'any of the small radiating bars inserted in the hub of a wheel to support the rim' as the segments of the disk in Gordon et al." *Office Action,* 10/31/06, Pg. 2.

The disk filters of Gordon et al. are not in a spoked relationship to one another as called for by Applicant. Although Applicant does not accede to the definitions cited by the Examiner, the disk filters of Gordon et al. do not even meet a definition of "spokes" according to the Examiner's own definition. That is, Gordon et al. neither teaches nor suggests filters in a spoked relationship with a hub having "radiating bars." As best as can be understood, by the Examiner's definition, the Examiner is calling the flat disk of Gordon et al. a "hub." If the flat disk is the "hub," then how can the segments of the disk be both the hub and the spokes? By the Examiner's definition, the hub should have bars inserted therein to support a rim. There are no "bars" inserted into and extending from the filter disk/hub to support a rim.

Rather, the filters of Gordon et al. are flat segments 270, 272 of filter 262. Perhaps the confusion regarding Gordon et al. arises from the Figures illustrating filter 262, wherein radial lines of delineation segment filter 262 into flat segments 270, 272. Although the Figures may be somewhat deceiving and the disk of Gordon et al. may have somewhat of an appearance of

spokes, the disks taught in the specification of Gordon et al. are not "spokes." Filter 262 of Gordon et al. is illustrated in Figures 5, 7, and 9, and the supporting text, beginning at Col. 13, ln. 8 of Gordon et al., presented below in whole with emphasis added, will better elucidate that which is taught by Gordon et al.:

> For the preferred dual energy baggage scanner shown in FIGS. 1-3, as seen in FIG. 5, in order to further enhance the disparity between the energy levels of high and low energy beams passing through the baggage being scanned, the waveform generator 186 preferably includes a motor 260 for rotating a filter 262, a rotary shaft encoder 264, and a digital-to-analog converter 268. Filter 262 is a preferably flat disk that is disposed proximal to X-ray tube 128 for rotation within the beam generated by X-ray tube 128. Rotary shaft encoder 264 senses the angular position of filter 262 and generates a digital signal representative thereof, and applies this digital signal to digital-to-analog converter 268. The latter generates an analog signal representative of the digital signal generated by encoder 264 and applies the analog signal to amplifier 230 of power supply 200.
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> In the illustrated embodiment, filter 262 is a flat metal disk that is divided up into six equally sized "pie shaped" segments, although the number of segments can vary. Three of the segments 270 are formed from relatively thick sheets 128 of dense material (e.g., 0.6 mm of copper) that are sufficiently thick so as to absorb a portion of the low energy photons generated by X-ray tube 128 and are sufficiently thin so as to transmit substantially all of the high energy photons generated by tube 128. The three remaining segments 272 are formed from relatively thin sheets of light material (e.g., 0.1 mm of aluminum) and are sufficiently thinner than segments 270 so that segments 272 transmit a higher percentage of the low energy photons generated by tube 128. Segments 270 and 272 are alternately disposed so that each of the thick segments 270 is adjacent two of the thinner segments 272, and vice versa.
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> In operation, filter 262 rotates under the control of motor 260, and analog-to-digital converter 268 generates a periodically varying analog signal representative of the angular orientation of filter 262, and specifically indicating whether a segment 270 or a segment 272 is disposed in the beam 124. In the illustrated embodiment, converter 268 preferably generates a sinusoidal signal characterized by frequency f_1, where f_1 is equal to three times the rotational frequency of filter 262. As stated above, the rate or frequency f_1 of the signal generated by converter 268 and applied to amplifier 230 controls the periodic rate at which the X-ray beam changes between high and low energy levels. Since the signal generated by converter 268 is synchronized with the rotation of filter 262, waveform generator 186 insures that the periodic rate of change of the X-ray beam between the two energy levels is synchronized with the rotation of filter 262.
>
> In the illustrated embodiment, filter 262 preferably rotates 120° for every oscillation of the X-ray beam, and the initial position of filter 262 is adjusted so that one of the thicker sections 270 is disposed in the beam between the tube 128 and the baggage 112 (shown in FIG. 1) when tube 128 generates the high energy

> beam (i.e., when the voltage level between node A and system ground equals V_1), and one of the thinner sections 272 is disposed in the beam when tube 128 generates the low energy beam (i.e., when the voltage level between node A and system ground equals V_2). So filter 262 removes a portion of the low energy photons from the high energy beam and filter 262 removes few if any of the low energy photons from the low energy beam. So filter 262 acts to increase the disparity between the energy levels of the high and low energy beams generated by tube 128.
>
> In the preferred embodiment, the rotation of filter 262 (and therefore the oscillation of the X-ray beam) is synchronized to the rotation of rotating disk 124 of the baggage scanner (shown in FIGS. 1-3), so that the X-ray beam periodically changes between the high and low energy levels and back to the high energy level (one cycle or period of the waveform) N times for every 360° rotation of disk 124, where N is an integer. In one preferred embodiment N is equal to 600, although this number can clearly vary. It will be appreciated that N low energy projections and N high energy projections will be thereby provided for each 360° rotation of disk 124. *Gordon et al. '774,* Col. 13, ln. 8 through Col. 14, ln. 16. (emphasis added).

Gordon et al. thus teaches a disk-shaped filter 262 having alternating filter segments 270 and 272. The filter 262 is positioned between the x-ray source and the object to be scanned. The filter rotation is synchronized with rotation of the gantry. As stated, filter 262 is illustrated in Figs. 5, 7, and 9. As such, filter 262 includes alternating flat segments 270, 272 in a disk shape, and filter 262 is rotated such that flat segments 270 and 272 alternate between the x-ray source and an object to be scanned.

MPEP §2131 states that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP §2131 further requires that "[t]he identical invention must be shown in as complete detail as is contained in the … claim" and that "[t]he elements must be arranged as required by the claim." Clearly Gordon et al. does not meet this requirement. The filter of Gordon et al. does not have segments in a spoked arrangement. Gordon et al. does not teach small radiating bars inserted into the hub of a wheel to support a rim. Rather, Gordon et al. teaches a flat disk filter, and one skilled in the art would recognize that a disk is not identical to a spoked wheel. In fact, the Examiner equated the metal disk of Gordon et al., i.e. filter 262, as the hub of a spoked wheel. With that interpretation, there are no "spokes" extending radially to a rim, and the metal disk is not in a spoked relationship with anything. Thus the elements of claims 1, 8, 16, 19, and 24 are neither expressly nor inherently described by Gordon et al.

Accordingly, that called for in claims 1, 8, 16, 19, and 24 is not taught or suggested by Gordon et al.. As such, Applicant believes that claims 1, 8, 16, 19, and 24 and claims which depend therefrom, are patentably distinct over the art of record.

The Examiner next rejected claims 5, 13, and 22 under 35 U.S.C. §103(a) as being unpatentable over Gordon, et al., in view of Heuscher. Applicant respectfully disagrees with the Examiner with respect to the art as applied, and in light of claims 5, 13, and 22 depending from what are believed otherwise allowable claims, the Applicant respectfully requests allowance of claims 5, 13, and 22 based on the chain of dependency.

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1-27.

Applicant hereby authorizes charging of Deposit Account No. 07-0845 for any additional fees associated with entering the aforementioned claims.

Applicant appreciates the Panel's consideration of these Amendments and Remarks and cordially invites the Panel to call the undersigned, should the Panel consider any matters unresolved.

Respectfully submitted,

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